

CLAIMS

1. A method for forming patterns aligned on either side  
5 of a thin film deposited on a substrate, the method comprising  
local etching of the thin film in order to form a first  
marking characterized in that it comprises:

- depositing a first pattern layer on the thin film,  
deposition of the first pattern layer preceding or following  
10 local etching of the thin film,
- a first lithography step for defining a location of a  
first pattern, with alignment of the first pattern location  
relatively to the first marking,
- local etching of the first pattern layer in order to form  
15 a first pattern,
- depositing a first bonding layer for covering the first  
marking and the first pattern,
- turning over the obtained structure following the  
deposition of the first bonding layer,
- 20 - suppressing the substrate,
- a step for etching the first bonding layer in order to  
form a second marking at the location of the first marking,
- a step for depositing a second pattern layer,
- a second lithography step for defining a location of a  
25 second pattern, with alignment of the second pattern location  
relatively to the second marking, and
- a step for etching the second pattern layer in order to  
form the second pattern.

30 2. The method for forming patterns according to claim  
1, characterized in that the turning over of the structure is  
followed by a bonding step for bonding the first bonding layer  
with a second bonding layer which covers a transfer substrate.

35 3. The method according to claim 2, characterized in  
that, as the first and second bonding layers are oxide layers,

bonding is a molecular bonding.

4. The method according to claim 2, characterized in  
that the second marking is transferred into the transfer  
5 substrate.

5. The method according to claim 1, characterized in  
that the local etching of the first and second pattern layers  
is plasma etching.

10 6. The method according to claim 1, characterized in  
that the first and the second pattern layers are layers of  
polycrystalline silicon, or metal, or nitride or silicon, or  
silica, or HiK material.

15 7. The method according to claim 1, characterized in  
that the thin film is semiconductor thin film.

20 8. The method according to claim 7, characterized in  
that the semiconductor thin film is silicon, gallium arsenide,  
or SiGe film.

25 9. The method according to claim 7, characterized in  
that the local etching of the semiconductor thin film is wet  
chemical etching or anisotropic plasma etching.

30 10. The method according to claim 7, characterized in  
that it comprises a step for forming a first gate oxide layer  
between the semiconductor thin film and the first pattern  
layer and in that the step for depositing the second pattern  
layer is preceded by the deposition of a second gate oxide  
layer on the semiconductor thin film.

35 11. The method according to claim 10, characterized in  
that the first pattern and the second pattern are transistor  
gates.

12. The method according to claim 1, characterized in that the thin film is a metal thin film.

5       13. The method according to claim 12, characterized in that the metal thin film is TiN or W film.

10      14. The method according to claim 1, characterized in that the first and second lithography steps are optical or electronic lithography steps.

15      15. The method according to claim 1, characterized in that it comprises the formation of a buried buffer layer between the thin film and the substrate.

15      16. The method according to claim 15, characterized in that the buried buffer layer is a SiO<sub>2</sub> or SiGe or Ni<sub>3</sub>N<sub>4</sub> layer.